

In the Specification:

On page 1, prior to line 3, please insert the following heading and paragraph:

--Cross Reference to Related Applications

This application is for entry into the U.S. national phase under §371 for International Application No. PCT/IB04/051897 having an international filing date of September 28, 2004, and from which priority is claimed under all applicable sections of Title 35 of the United States Code including, but not limited to, Sections 120, 363 and 365(c), and which in turn claims priority to UK application 0322775.8 filed on September 29, 2003.--

On page 2, please amend the paragraph beginning at line 21 as follows:

--According to a first aspect of the present invention there is provided a method of signalling in a communications network in which service information data is transmitted via a first set of channels, the method comprising providing a copy of at least some of said service information data, providing forward error correction (FEC) data for said copy and transmitting said copy and said FEC data via a second, different set of channels.--

On page 4, please amend the paragraph beginning at line 12 as follows:

--According to a second aspect of the present invention there is provided a method of signalling in a communications network in which service information data is transmitted via a first set of channels, the method comprising providing a first copy of a first part of said service information data, providing forward error correction (FEC) data for said copy, providing a second copy of a second part of said service information data and transmitting said first copy and said FEC data and said second copy via a second, different set of channels.--

On page 13, please amend the paragraph beginning at line 31 as follows:

--The MPE encapsulator 6 receives a stream of data 9 and service information data 10 and, optionally, a copy or partial copy 10' of service information data 10. The MPE encapsulator 6 comprises ~~[[means]]~~ an FEC data generator 16 for generating FEC data from the received data 9, 10, 10'. The FEC ~~generating means~~ data generator 16 outputs a stream or set 17_{SI} of data packets including copied service information data, referred to as "SI data", and a stream or set 18_{SI} of associated FEC data packets, and a stream or set 17_{APP} of application data packets and a stream or set 18_{APP} of associated FEC data packets.--

On page 14 please amend the paragraph beginning at line 6 as follows:

--The MPE encapsulator 6 also comprises ~~[[means]]~~ a data formatter 19 for placing streams or sets 17_{SI}, 17_{APP}, 18_{SI}, 18_{APP} of data packets into sections, in other words data formatting means. The data ~~formatting means~~ formatter 19 outputs corresponding streams or sets of SI sections 20_{SI}, MPE sections 20_{APP}, SI-FEC sections 21_{SI} and MPE-FEC sections 21_{APP}, wherein MPE sections 20_{APP} and MPE-FEC sections 21_{APP} relate to the application data 9.--

On page 14 please amend the paragraph beginning at line 13 as follows:

--The MPE encapsulator 6 also comprises ~~[[means]]~~ a burst assembler 22 for arranging streams or sets of sections and assembling them into one or more bursts 23_{SI} which comprise SI data, one or more bursts 23_{APP} which comprise application data, one or more bursts 24_{SI} which comprise SI-FEC data and one or more bursts 24_{APP} which comprise MPE-FEC data.--

On page 14 please amend the paragraph beginning at line 19 as follows:

--The MPE encapsulator 6 also comprises ~~[[means]]~~ an encapsulator and multiplexer 25 for placing sections 20_{SI}, 20_{APP}, 21_{SI}, 21_{APP} which are arranged in time-sliced bursts 23_{SI}, 23_{APP}, 24_{SI}, 24_{APP} and conventional PSI/SI and SI data table sections 26, into transport stream packets and multiplexing transport stream packets into a single transport stream 11.--

On page 14, please amend the paragraph beginning at line 24 as follows:

--The MPE encapsulator 6 also comprises ~~controlling means~~ a controller 27. The ~~controlling means~~ controller 27 or data ~~formatting means~~ formatter 19 may prepare conventional PSI/SI and SI data table sections 26.--

On page 14, please amend the paragraph beginning at line 28 as follows:

--In one embodiment of the invention, the MPE encapsulator 6 is implemented by a data processing means processor, such as a personal computer which may include one or more digital signal processors, running one or more computer programs (not shown). However, any element of the MPE encapsulator 6 may be implemented in dedicated hardware which may use a number of microprocessors or digital signal processors.--

On page 15, please amend the heading and paragraph beginning at line 3 as follows:

--FEC data ~~generating means~~ generator 16

Referring to Figure 4, 5 and 6a, the FEC data ~~generating means~~ generator 16 receives or generates a copy 10' of service information 10 or a part of service information 10 in the form of a stream or set of PSI/SI and SI data packets 10₁', 10₂', 10₃', 10₄', 10_m' comprising service information.--

On page 15, please amend the paragraph beginning at line 9 as follows:

--The FEC ~~code generating means~~ data generator 16 may also receive a stream or set 9 of application data packets 9₁, 9₂, 9₃, 9₄, 9_m* comprising application data, preferably in the form of IP datagrams. It will be appreciated that streams or sets 10', 9 may comprise different numbers of packets, i.e. m* m.--

On page 15, please amend the paragraph beginning at line 18 as follows:

--The FEC ~~generating means~~ data generator 16 generates SI data 17_{SI} and corresponding FEC data 18_{SI} for the SI data packets 10₁', 10₂', 10₃', 10₄', 10_m' and also application data 17_{APP} and corresponding FEC data 18_{APP} for the data packets 9₁, 9₂, 9₃, 9₄, 9_m* (step S2). The process is substantially the same for both types of data packets 10₁', 10₂', 10₃', 10₄', 10_m', 9₁, 9₂, 9₃, 9₄, 9_m*.--

On page 18, please amend the heading and paragraph beginning at line 10 as follows:

--Data ~~formatting means~~ formatter 19

Referring to Figure 4, 5, 7 and 8, the data ~~formatting means~~ formatter 19 generates sections 20_{SI} comprising SI data packets 17_{SI1}, 17_{SI2}, 17_{SI3}, 17_{SI4}, 17_{SI_m}, 17_{SI_p}, sections 20_{APP} comprising application data packets 17_{APP1}, 17_{APP2}, 17_{APP3}, 17_{APP4}, 17_{APP_m*}, 17_{APP_p}, sections 21_{SI} comprising FEC data packets 18_{SI1}, 18_{SI2}, 18_{SI_q} and sections 21_{APP} comprising FEC data packets 18_{APP1}, 18_{APP2}, 18_{APP_q} preferably in accordance with Section 7 of European Telecommunications Standards Institute (ETSI) Standard 301 192 "Digital Video Broadcasting (DVB); DVB specification for data broadcasting" V1.3.1 (2003-01) (steps S3 & S4).--

On page 18, please amend the paragraph beginning at line 31 as follows:

--Referring in particular to Figure 7, the data ~~formatting means~~ formatter 19 places SI data packets 17_{SI1}, 17_{SI2}, 17_{SI3}, 17_{SI_p} into SI sections 20_{SI1}, 20_{SI2}, 20_{SI3}, 20_{SI_p} compliant with the DSM-CC section format, in one embodiment of the invention, using the syntax defined in Table 1 below:--

On page 19, please amend the paragraph beginning at line 9 as follows:

--Likewise, the data ~~formatting means~~ formatter 19 places application data packets 17_{APP1}, 17_{APP2}, 17_{APP3}, 17_{APP_p} into MPE sections 20_{APP1}, 20_{APP2}, 20_{APP3}, 20_{APP_p} compliant with the DSM-CC section format, using the syntax defined in Table 1 above and in one embodiment of the

invention each application data packet 17_{APP1}, 17_{APP2}, 17_{APP3}, 17_{APPp} is placed into a corresponding MPE section 20_{APP1}, 20_{APP2}, 20_{APP3}, 20_{APPn}.--

On page 20, please amend the paragraph beginning at line 5 as follows:

--Referring in particular to Figure 8, the data ~~formatting means~~ formatter 19 places FEC data packets 18_{SI1}, 18_{SI2}, 18_{SIq} for SI data packets into SI-FEC sections 21_{SI1}, 21_{SI2}, 21_{SIq} compliant with the DSM-CC section format, in one embodiment of the invention using the syntax defined in Table 2 below:--

On page 20, please amend the paragraph beginning at line 15 as follows:

--Likewise, the data ~~formatting means~~ formatter 19 places FEC data packets 18_{APP1}, 18_{APP2}, 18_{APPq} for application data into MPE-FEC sections 21_{APP1}, 21_{APP2}, 21_{APPq} compliant with the DSM-CC section format, using the syntax defined in Table 2 above and in one embodiment of the invention each FEC data packet 18_{APP1}, 18_{APP2}, 18_{APPq} is placed into a corresponding MPE-FEC section 21_{APP1}, 21_{APP2}, 21_{APPq}.--

On page 21, please amend the heading and paragraph beginning at line 6 as follows:

--Burst ~~assembling means~~ assembler 22

Time slicing may be employed whereby, instead of transmitting data for a service at a bit rate appropriate for consuming the transmitted service, for example which would allow direct rendering or other use of the application data for the service, the data for the service is sent in one or more bursts using a higher bit rate. Preferably, all the available bandwidth is used. Between bursts, no application data for the said service is transmitted. Thus, the bandwidth can be used for other services.--

On page 22, please amend the paragraph beginning at line 14 as follows:

--Referring still to Figures 4 and 5 and also to Figures 10 and 11, the burst ~~assembling means~~

assembler 22 arranges the SI sections 20_{SI1}, 20_{SI2}, 20_{SI3}, 20_{SI4}, 20_{SIp} into an SI burst 23_{SI1} (step S5). SI sections 20_{SI1}, 20_{SI2}, 20_{SI3}, 20_{SI4}, 20_{SIp} may be divided between plural bursts.--

On page 22, please amend the paragraph beginning at line 19 as follows:

--The burst ~~assembling means~~ assembler 22 also arranges SI-FEC sections 21_{SI1}, 21_{SI2}, 21_{SI3}, 21_{SIr} and SI-FEC sections 21_{SI(r+1)}, 21_{SI(r+2)}, 21_{SI(r+3)}, 21_{SIq} into first and second FEC bursts 24_{SI1}, 24_{SI2} respectively (step S6).--

On page 22, please amend the paragraph beginning at line 26 as follows:

--Referring still to Figures 4 and 5 and also to Figures 12 and 13, the burst ~~assembling means~~ assembler 22 arranges the MPE sections 20_{APP1}, 20_{APP2}, 20_{APP3}, 20_{APP4}, 20_{APPp} into an MPE burst 23_{APP1} (step S5). MPE sections 20_{APP1}, 20_{APP2}, 20_{APP3}, 20_{APP4}, 20_{APPp} may be divided between plural bursts.--

On page 22, please amend the paragraph beginning at line 31 as follows:

--The burst ~~assembling means~~ assembler 22 arranges the MPE-FEC section 21_{APP1}, 21_{APP2}, 21_{APP3}, 21_{APPq} into an MPE-FEC burst 24_{APP1} (step S6). MPE-FEC sections 21_{APP1}, 21_{APP2}, 21_{APP3}, 21_{APPq} may be divided between plural bursts.--

On page 23, please amend the paragraph beginning at line 2 as follows:

--The burst ~~assembling means~~ assembler 22 places respective real time parameters in MAC_address_1 to MAC address_4 fields of each header 36 (Figure 9) as defined in Table 1 or 2 above of each SI section 20_{SI1}, 20_{SI2}, 20_{SI3}, 20_{SIp}, each MPE section 20_{APP1}, 20_{APP2}, 20_{APP3}, 20_{APPp}, each SI-FEC sections 21_{SI1}, 21_{SI2}, 21_{SIq} and each MPE-FEC sections 21_{APP1}, 21_{APP2}, 21_{APPq}. For example, Table 3 below shows real time parameter syntax in one embodiment of the invention:--

On page 27, please amend the heading and paragraph beginning at line 20 as follows:

--~~Encapsulating and multiplexing means~~ Encapsulator and multiplexer 25

Referring to Figures 4, 5, 15 and 16, the ~~encapsulating and multiplexing means~~ encapsulator and multiplexer 25 places SI sections 20_{SI1}, 20_{SI2}, 20_{SI3}, 20_{SI4}, 20_{SIp} into TS packets 12_{SIA1}, 12_{SIA2}, 12_{SIA3}, 12_{SIA4}, 12_{SIA5}, 12_{SIA6}, 12_{SIA8} having the same PID, for example PID = A, where A is hexadecimal number between 0x0030 to 0x1FFE (step S7).--

On page 27, please amend the paragraph beginning at line 26 as follows:

--The ~~encapsulating and multiplexing means~~ encapsulator and multiplexer 25 places SI-FEC sections 21_{SI1}, 21_{SI2}, 21_{SI3}, 21_{SIr}, 21_{SI(r+1)}, 21_{SI(r+2)}, 21_{SI(r+3)}, 21_{SIq} into TS packets 12_{SIB1}, 12_{SIB2}, 12_{SIB3}, 12_{SIB4}, 12_{SIB5}, 12_{SIB6}, 12_{SIBT} having the same PID, for example PID = B, where B is hexadecimal number between 0x0030 to 0x1FFE (step S7). In one embodiment of the present invention, PID A and PID B are different (A B).--

On page 27, please amend the paragraph beginning at line 32 as follows:

--Referring to Figures 4, 5, 17 and 18, the ~~encapsulating and multiplexing means~~ encapsulator and multiplexer 25 places MPE sections 20_{APP1}, 20_{APP2}, 20_{APP3}, 20_{APP4}, 20_{APPn} into TS packets 12_{APPA1}, 12_{APPA2}, 12_{APPA3}, 12_{APPA4}, 12_{APPA5}, 12_{APPA6}, 12_{APPAS} having the same PID, for example PID = C, where C is hexadecimal number between 0x0030 to 0x1FFE. In one embodiment of the invention, PID A and PID C are different (A C).--

On page 28, please amend the paragraph beginning at line 5 as follows:

--The ~~encapsulating and multiplexing means~~ encapsulator and multiplexer 25 places MPE-FEC sections 21_{APP1}, 21_{APP2}, 21_{APP3}, 21_{APPt}, 21_{APP(r+1)}, 21_{APP(r+2)}, 21_{APP(r+3)}, 21_{APPq} into TS packets 12_{APPB1}, 12_{APPB2}, 12_{APPB3}, 12_{APPB4}, 12_{APPB5}, 12_{APPB6}, 12_{APPBt} having the same PID, for example PID = D, where D is hexadecimal number between 0x0030 to 0x1FFE (step S7). In one embodiment of the present invention, PID C and PID D are different (C D).--

On page 29, please amend the paragraph beginning at line 6 as follows:

--In yet another embodiment of the invention, the SI bursts 23_{SI1} , 23_{SI2} and SI-FEC bursts 24_{SI1} , 24_{SI2} are generated as described earlier. However, the ~~encapsulating and multiplexing means~~ encapsulator and multiplexer 25 places the SI-FEC sections 21_{SI1} , 21_{SI2} , 21_{SI3} , 21_{SIr} , $21_{SI(r+1)}$, $21_{SI(r+2)}$, $21_{SI(r+3)}$, 21_{SIq} into TS packets 12_{SIB1} , 12_{SIB2} , 12_{SIB3} , 12_{SIB4} , 12_{SIB5} , 12_{SIB6} , 12_{SIBT} having the same PID as the TS packets 12_{SIA1} , 12_{SIA2} , 12_{SIA3} , 12_{SIA4} , 12_{SIA5} , 12_{SIA6} , 12_{SIAT} carrying SI data sections 20_{SI1} , 20_{SI2} , 20_{SI3} , 20_{SI4} , 20_{SIn} , in other words the same PID is used for both bursts ($A = B$).--

On page 29, please amend the heading paragraph beginning at line 14 as follows:

--~~Controlling means~~ Controller 27

Referring to Figure 4, the MPE encapsulator 6 generally processes PSI/SI and SI data 10 in two ways:--

On page 29, please amend the paragraph beginning at line 28 as follows:

--Each of these processes will now be described in more detail:

--PSI/SI and SI data 10--

The ~~controlling means~~ controller 27 receives an IP/MAC Notification Table (INT) (not shown) or part of the INT as part of the service information data 10 (Figure 2). The INT is used to signal the PID of the TS packets 12_{SIA1} (Figure 15) carrying SI data. In other words, the INT is used to signal the availability and location of the elementary stream with $PID = A$.--

On page 30, please amend the paragraph beginning at line 2 as follows:

--The ~~controlling means~~ controller 27 segments service information tables including the INT into sections (not shown) and passes the table sections 26 (Figure 4) to the ~~encapsulating and~~

~~multiplexing means~~ encapsulator and multiplexer 25 to be mapped into TS packets (not shown) having PID = 0x004C and multiplexed into the transport stream 11 (Figure 2).--

On page 35, please amend the paragraph beginning at line 4 as follows:

--Referring to Figures 21 and 22, the ~~controlling means~~ controller 27 generates a time slicing and FEC descriptor 39 indicating PID = B in the si_fec/mpe_fec PID field 40 (step S10) and places the descriptor 39 in the NIT 42 in the second descriptor loop 44 (step S11).--

On page 35, please amend the paragraph beginning at line 9 as follows:

--Referring also to Figure 23, the ~~controlling means~~ controller 27 segments the NIT 42 into table sections 42₁, 42₂, 42₃, 42_U (step S12), maps them into TS packets 12_{D1}, 12_{D2}, 12_{D3}, 12_{DU}, labeled in this case with PID = 0x0010 and multiplexes the TS packets 12_{D1}, 12_{D2}, 12_{D3}, 12_{DU} into the transport stream 11 (step S13). A receiver usually only accesses the NIT 42 when connecting to the network 1 (Figure 1).--

On page 36, please amend the paragraph beginning at line 1 as follows:

--Copied PSI/SI and SI data 10'--

Referring to Figure 24, as mentioned earlier, if the MPE encapsulator 6 does not receive a copy of the service information data 10, then the ~~controlling means~~ controller 27 generates a copy or partial copy 10' of the service information data 10 (step S15). The ~~controlling means~~ controller 27 can modify the service information data 10 before or after generating the copy 10', in particular by generating the time slicing and FEC descriptor 39 and placing it in the NIT 42 as described earlier. If the service information data 10 is modified before copying then a complete copy of the modified service information data 10 can be made.--

On page 36, please amend the paragraph beginning at line 11 as follows:

--Using the copy or partial copy 10' of the service information, the FEC data ~~generating means~~
generator 16 generates SI data 17_{SI} and FEC data 18_{SI}. If no stuffing data is added during FEC
code generation, the SI data 17_{SI} may comprise only the copy or partial 10' of the service
information.--